

The drawings have been objected to "as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 20." The specification has been amended to refer to the element represented by reference sign 20. Again, the assistance of the Examiner here is gratefully acknowledged.

Claims 1-12 have been rejected under 35 USC 102(b) as being "anticipated by Saito (Pat. 5,926,438)." This rejection is respectfully traversed.

The Saito patent relates to a hand-held LCD fish finder. The device described is basically a game device but is modified so that, instead of a typical ROM game cassette, "another device, which includes a cassette portion, a main body, and a float sensor having an ultrasonic transmitter, is inserted into the LCD game machine so that the topography of the water bottom and the fish in the water are displayed on an LCD panel by means of a program ROM having a memory to display the same based on an echo signal issued and received through the ultrasonic transmitter" (see the Abstract of the Disclosure). As described in column 3, beginning at line 36, a "fitting device" 41 includes a cassette portion 42 and a main body 43 in addition to a cable 45 connecting a fish float sensor 44 to the main body. The cable 45 is covered with a foam plastic material so that the cable may float on the water. The operation of the cassette portion 42 is described at columns 5 and 6 and as set forth therein, the cassette portion 42 "is also built in the ROM having a memory cell of the fish finder is now inserted, so that the topography of the water bottom and fish are displayed on the LCD panel (2) based on the echo signals of the ultrasonic transmitter (50). In this constitution, fishing can be enjoyed with feeling of playing the game under the simple operation, and at the same time, the present fish finder is very small and in light weight suitable for carrying, so that this machine can be used at any place with ease."

In rejecting the claims, the Examiner has attempted to read the words of the claim on to the Saito patent. However, with all due respect, this reading appears to ignore the actual words of the claims. For example, claim 1 recites "a sensor for determining, using a measuring structure in the open channel, the pressure head of water flowing in the open channel and for producing a corresponding output signal." The "fishing float sensor" 44 of the Saito patent does not use a measurement structure

and does not determine the pressure head of water flowing in an open channel. Sensor 44 is simply a fish finder and produces an output based on echo signals which have nothing to do with pressure head. Further, the Saito patent does not disclose "a central processing unit for receiving said output signal from said sensor, for calculating total flow in the channel based on said output signal and for producing a total flow signal based on the calculated total flow." In this regard, there is simply no teaching in the reference of calculating total flow or of producing a total flow signal. Further, the display device 25 of the Saito patent does not display total flow based on total flow signal. Moreover, it is questioned whether the Saito patent even discloses a single housing for housing a sensor, central processing unit and display device in that the sensor 44 is connected to the housing 43 by a long cable 45 and clearly is not disposed within housing 43. Accordingly, withdrawal of the rejection of claim 1 and the claims dependent thereon is respectfully solicited.

Briefly considering the dependent claims, while the dependent claims are patentable for at least the reasons set forth above in support of the patentability of claim 1, a number of the dependent claims are also separately patentable. For example, the Saito patent clearly does not disclose a measurement structure comprising a weir or flume. The Examiner states that this is "inherently disclosed on column 3, lines 42-43," but the disclosure of the Saito patent at these lines has been discussed above and there is simply no disclosure in these lines, or elsewhere in the Saito patent, of the use of a weir or flume.

With respect to independent claim 9, drawn to a method, and claims 10-12 dependent thereon, the Examiner states that "said claims deal with the method of using the claimed device and exist as an essential constituent of the present invention, therefore these claims are said to be inherently disclosed in the teachings of Saito." As pointed out above, the Saito patent does not disclose the present invention as claimed in claim 1 and thus, for similar reasons, does not disclose the subject matter of claim 9 and the claims dependent thereon.

Claims 1-5 have also been rejected under 35 USC 103(a) "as being unpatentable over Amano (Pat. 5,437,634) in view of Brackett et al. (Pat. 5,333,498)". This rejection is respectfully traversed.

Again, the Examiner refers to certain elements of the Amano patent while reciting wording taken from the claims but, again, with all due respect, it is not seen that the elements in question are actually readable on or otherwise correspond to what is being claimed. The Amano patent discloses a medical pump driving device wherein a sensor 6 is connected between artificial lungs 1 and a centrifugal pump 2 as well as to a motor driving device 5. As stated in column 7, lines 8-15, the sensor is provided in a tube 12 of the lower stream of the centrifugal pump 2 and connected to an input section of the driving device 5. The sensor 6 has "a function of detecting whether or not bubbles are formed in the tube of the lower stream," and also "has a function of measuring the flow rate of liquid passing through the tube 12. The sensor 6 is favorably used an ultrasonic sensor." As set forth in column 10, the third full paragraph, a "discrimination" indicated by step 114 "discriminates whether or not the flow rate of liquid (Ringer's solution) is within 'a real using range of liquid flow rate' (step 114; YES or NO). It is noted that the discrimination of step 114 is performed based on a real liquid flow rate measured by the sensor 6. The significance of such discrimination lies in preventing excessive amount of liquid from flowing in the human body so as to ensure safety."

It is clear from the foregoing that sensor 6 does not measure pressure head, does not measure pressure head of water flowing in an open channel, and does not use a measurement structure in an open channel. Moreover, there is no calculation of "total flow in the channel," no producing a total flow signal based on the calculated total water flow, no display of total flow and no housing as claimed.

In the rejection, it is acknowledged that the Amano patent does not disclose a single housing as claimed. However, none of the other differences are acknowledged. These differences clearly define over the Amano patent and assuming for the sake of argument that it would be obvious to combine the Amano and Brackett et al. patents, it is clear that no possible combination of these two references could result in the present invention as claimed in claim 1. Moreover, for the reasons set forth below, it is respectfully submitted that it would not be obvious to combine the very different teachings of the Amano and Brackett et al. patents.

The Brackett et al. patent discloses an apparatus and method for measuring the quantity of crude oil transferred to or from a storage tank. All measurements are taken

through an opening near the bottom of the tank. A water detecting probe is extendable through the opening and a sampling device is connected to the opening for taking samples of liquid transferred to or from the tank. The pressure sensor is connected to the opening for generating a pressure signal indicative of the pressure of the liquid in the tank.

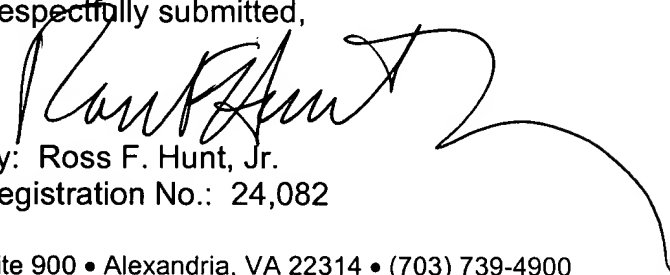
The Examiner refers to element 34 of the Brackett et al. patent as a "fluid measuring device" and while this may be broadly true, it is also true that, as indicated above, the measurements made have nothing to do with those made by the device of the present invention much less those made by the system of the Amano patent. Given the actual teachings of the Amano and Brackett et al. patents, there would simply be no reason for combining the teachings of the two. Further, it is respectfully submitted that conduit 30 is clearly not "a weir or flume." Finally, it is not even seen that the Brackett et al. reference discloses "a housing that is composed by a top and bottom portion as noted in Figure 2 with a depending member wherein the receiver is received as an element 34." In this regard, in Figure 2, element 34 depends from conduit 30.

In summary, it is respectfully submitted that it would not be obvious to combine the two references based on the actual teachings thereof and that, further, even if the references were somehow combined, the resultant hybrid combination clearly would not meet the terms of claims 1-5.

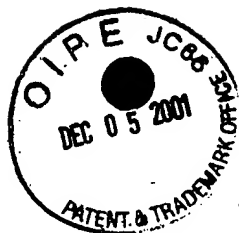
Allowance of the application in its present form is respectfully solicited.

Respectfully submitted,

Date: December 4, 2001


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ATTACHMENT B

Marked Up Replacement Paragraphs

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At the following locations, a marked up copy of the replaced paragraph(s) is provided.

Page 5, lines 4-20.

Figure 2 is a perspective view of a preferred embodiment of the overall flow measurement system of the invention, showing the system in use;

Figure 3 is a side view of the preferred embodiment of the continuous flow measurement system of the invention, showing the common housing; and

Figure 34 is a transverse cross-sectional view of the embodiment of Figure 2.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Figures 1 to ~~Figure 34~~, there is shown a continuous flow measurement system in accordance with a preferred embodiment of the invention. The measurement system, which is generally denoted 10, includes a display device 12, a central processing unit (CPU) 14, and a water-level sensor 16 housed within a housing unit 18.

The water-level sensor 16, the CPU 14, and the display device 12 cooperate to measure, calculate and display the total water flow. In general, as shown in Figure 402, the device 10 (including the water-level sensor 16) is positioned relative to a measurement structure such as a flume or weir, indicated schematically at F, so as to measure the open channel head, h_a , of a channel indicated at C, and the output of the water-level sensor 16 is connected to the CPU 14 which uses measurements from the water-level sensor 16 to determine the total flow, T_f . The CPU 14 is connected to the display device 12 and transmits total flow, T_f , measurements for display by device 12.

Page 6, lines 12-16.

As shown in Figures 3 and 4, the water-level sensor 16 is mounted in a downwardly depending member 20 which forms part of housing 18 and which is secured to the bottom of the base portion 18b of housing 18 by a screw threaded mounting element 22. The water-level sensor 16 comprises an ultrasonic sensor, although other suitable water level sensors can be used in some applications.